

Attachment B: Background and Questions on Renewable Distributed Generation

Since the energy crises of 2000/2001, installation of renewable distributed generation (DG) systems has increased dramatically in California. Before 2000, a mere 10 megawatts (MW) of grid-connected solar photovoltaics (PV) capacity had been installed in California; California passed 50 MW of installed capacity in 2003 and is currently above 75 MW of installed capacity. Residential and small commercial applications of renewable DG systems in California are supported through incentives provided under the Emerging Renewables Program (ERP), one of several parts of the Energy Commission's Renewable Energy Program (REP). Larger applications of renewable DG are provided incentives through the California Public Utilities Commission's (CPUC) Self-Generation Incentives Program (SGIP). Publicly owned utilities like the Sacramento Municipal Utilities District and Los Angeles Department of Water and Power have similar programs.

In addition, Assembly Bill 58 (AB 58, Keeley, Chapter 836, Statutes of 2002) requires electrical utilities in the state to allow net metering of specified renewable DG systems until the total rated generation capacity of all such systems exceed one-half of one percent of the electric service provider's aggregate customer peak demand. Once the threshold level is met, electric utilities are not obligated to allow further net metering, but they may choose to do so. California has also exempted specified renewable DG systems from the Cost Responsibility Surcharge (CRS), at least until an overall cap in the amount of DG is reached. State tax credits for some renewable systems have decreased in 2004 and are scheduled to expire at the end of next year.

The continuation of renewable DG incentive programs is uncertain without significant increases in funding or changes in long-term strategies. Demand for existing incentive programs for renewable DG has been strong, even as some of the rebates available for the systems decline over time. About \$85 million of additional funding has been transferred into the ERP in 2004. This amount is expected to fund program activity through the end of the year. Activity at the CPUC's SGIP is partially on hold until clarity about additional funding established by AB 1685 is achieved.

In addition, Governor Schwarzenegger indicated in his state of the state address an intent to "... encourage builders to build homes using partial solar power ...", and several bills have been proposed in the last two years in the California Legislature that mandate that new homes include solar PV or be solar-ready. Since approximately 130,000 to 150,000 new single-family homes are built each year in California, such policies could imply a significant acceleration in installed solar capacity in the state. In addition, projected growth of new housing in the state is not distributed uniformly – the inland areas of Southern California and the Central Valley are expected to account for most new homes in the state. These hot and dry areas have the highest potential impact for peak demand, and the highest potential for offsetting that peak demand with solar generation systems.

The Energy Commission would appreciate answers to the following questions:

1. How should state and local programs be coordinated in terms of incentives? How formal or informal should this coordination be?
2. The Emerging Renewables Program offers incentives to help commercialize emerging renewable technologies, create economies of scale, and support the development of a competitive market environment to help bring down the cost of emerging renewable technologies. Over time, it is expected that incentives will no longer be necessary to support further development, as the technology becomes competitive in its own right. This strategy appears to have been successful in establishing the largest market in the world for renewable DG, which is in Japan, where declining incentives for PV installations have nearly been phased out. Is this an effective long-term strategy for California, or should it be altered? In particular, please comment on the following:
 - a. In California, are we achieving program goals of bringing about cost reductions so that we are close to reaching the point in time where incentives are no longer necessary?
 - b. What is the expected outlook in cost reductions for retail purchase of these DG systems?
 - c. What could be done to accelerate reduction in costs of renewable DG technologies? If additional funding is necessary to support renewable DG technologies as costs are declining, how much support should be provided and for how long? What would be the source of funding?
 - d. What is the strategy of the PV and small wind industry if support from state incentive programs for their technologies is phased out?
3. Should the state pursue a strategy similar to the German model of providing incentives to produce renewable DG, rather than incentives to install renewable generating systems? If so, how should such a performance-based incentive program be structured and funded? How would the state transition from the current incentive model, which is similar to the Japanese model, to a performance-based model similar to the German model?

4. Germany and Japan are the world leaders in installing distributed PV generation systems, followed by California. What lessons can California learn from these successes?

5. Many distributed renewable generation systems are also supported by allowing net metering for the installed site, exemption from cost responsibility surcharges for on-site generation, and state tax credits or tax exemptions. Generally, these policies are capped or scheduled to expire at some date. Keeping in mind the expectation for declining costs and funding challenges, should the state revisit these support policies? In particular:
- a. Should the caps or expectations on these policies be reexamined in light of the strong recent demand? What opportunities and problems would this be likely to create?
 - b. What is the status of net metering in California? Which utilities are coming close to the cap? When do they expect to reach it? What policies are they planning to adopt once the cap is reached?
 - c. Should incentives be adopted to encourage utilities to allow additional net metering beyond the cap set in AB 58? What type/level of incentives would you recommend?
 - d. Should the state's solar tax credit be extended beyond 2005? If so, how should this credit be structured? Would passage of a federal tax credit affect continuation of a state tax credit?
 - e. Is there any near-term necessity to examine the exemption from CRS of some distributed renewable generation installations in light of the CRS caps?
6. How should the state establish a program to foster installation of solar systems on new homes built in California? In particular:
- a. What should the near-term and long-term goals be for solar on new homes? Should the state establish numerical targets for these goals?
 - b. Should mandates, incentives, or some other strategy be used to foster solar on new homes?
 - c. What are the opportunities and barriers to increasing the market penetration of solar systems on new homes in California?

- d. To what extent would it be appropriate to modify California building codes to require new buildings to be solar ready? Should solar on new homes be mandated; if so, at what level, size, or percentage? What are the consequences of having a mandate for solar on new homes? Under what circumstances should a PV system qualify for compliance credits in meeting the building energy efficiency standards? What are the consequences of such a credit?
- e. What role can investor-owned utilities and municipal utilities play in delivering solar on new homes in their service areas?
- f. What role can builders play in delivering solar on new homes to their customers?
- g. How should a program for solar on new homes be coordinated with existing incentive programs, if at all?